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Home Heating Safety



Ontario

Ministry of
Consumer and
Commercial
Relations

Fuels Safety Branch



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Introduction

In Ontario, we rely on our home heating systems for much of the year. Most of us use oil, natural gas or propane furnaces for warmth, especially on those cold nights, and we expect our fuel-burning heating systems to operate safely — without the threat of accident or illness.

Providing this high level of safety requires teamwork from the heating industry, homeowners and government.

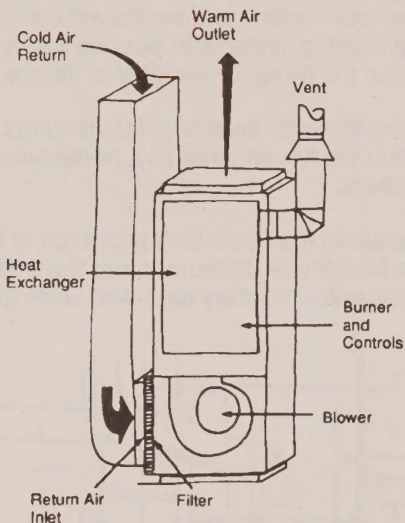
The people in the Fuels Safety Branch of the Ontario Ministry of Consumer and Commercial Relations enforce safety rules and work with the



heating industry to set standards for the safe design of furnaces and other parts of our heating systems.

It's up to homeowners to ensure their heating systems are maintained in good working order. To help you, a step-by-step guide is contained in this brochure.

How fuel-burning heating systems work



A fuel-burning heating system is activated by a signal from the thermostat indicating the temperature in the home has fallen below the selected setting.

Heat is generated when fuel is combined with oxygen in the air and burned, a process called combustion. Combustion takes place in the combustion chamber of the furnace.

In Ontario, most heating systems use a forced-air system to distribute heat throughout the home. Air is drawn from the house through cold-air return ducts to the furnace heat exchanger. There, the air is heated and blown back into the home through warm air outlets.

When the temperature reaches a set level, the heating system automatically shuts off.

With a hot-water system, usually found in older homes as well as apartment buildings, water is heated in a boiler. The hot water travels through pipes to radiators from which the heat is released.

Danger!

Carbon monoxide

Regardless of the system, the combustion of fuel produces carbon monoxide. If inadequate air is available, combustion is incomplete and more carbon monoxide is generated. In a well-maintained heating system, the small quantities of this potentially dangerous gas will exit the home through the chimney.

In larger quantities, this gas can cause headaches, nausea, even death.

It has no color or smell, so you can't tell if you're breathing it. Although carbon monoxide detectors are available, there are not yet standards to make sure they work.

Generally, dangerous levels of carbon monoxide result from poor maintenance. For example, a furnace in need of repair may not allow enough air for full combustion, producing higher levels of carbon monoxide. Or a blocked chimney can prevent the deadly gas from escaping.

Some energy-conscious consumers unwittingly create a dangerous environment by sealing their homes tightly and operating a fireplace or exhaust fan, depriving the heating system of air required for full combustion.

Or, renovators sometimes construct walls that block the air supply to the furnace.

Safe operation of the heating system must be considered when energy-saving measures and renovations are implemented.

Combustion gases can spill into a house if too much air is being consumed by a fireplace or exhausted by a kitchen fan in a tightly sealed house.

Carbon monoxide may also enter the home from a corroded heat exchanger. Owners are advised to keep certain household chemicals away from furnaces. These include bleaches, fabric or water softeners, paints, paint strippers and varnishes which contain chemicals that may contribute to corrosion of heat exchangers.

If the home is humid or water accumulates around the furnace, owners of furnaces would be wise to ask a heating contractor to check for heat exchanger corrosion. Air supply for your furnace piped directly from the outdoors to the furnace is preferred to reduce this corrosion.

Fires and explosions

With heating systems, the danger of fires or explosions also exists. That's why it's important to keep any combustible materials or chemicals away from the furnace.

If there has been a fire near the furnace or ducts — no matter how small or how well it has been put out — consumers should ask a heating contractor to check for damage to heating connections.

Although safe in normal conditions, natural-gas regulators require a few extra cautions. Allowing outdoor natural-gas regulators to become covered with freezing rain, ice or snow can sometimes lead to the uncontrolled flow of the fuel into the home — and disaster!

Homeowners should ensure faulty or overflowing eavestroughs do not drip water directly onto outdoor regulators or gas meters.

If you smell the distinctive odor of natural gas or propane, immediately open all windows and doors, refrain from smoking or using electrical switches and appliances, leave the house and call your fuel supplier.

Prevention

The safe and efficient operation of a heating system depends on an adequate supply of air for combustion plus a well-maintained furnace or boiler and chimney.

As a result, it's important for homeowners to call in a contractor for yearly maintenance and whenever the warning signs (appearing in the next section of this booklet) appear. Furthermore, they should take the steps listed below.

Do-it-yourself checklist

Heating System

- When buying a home or heating system, make sure you receive the heating system's maintenance and operating manual. Keep it in a safe place.
- Have the heating system serviced by a qualified contractor at least once a year, according to the manufacturer's instructions.
- Examine the heating system from time to time for signs of deterioration, such as water stains, corrosion or leakage.
- In forced-air systems, clean furnace air filters frequently, at least twice a heating season.
- Make sure warm-air outlets and cold-air returns are not covered by carpets or blocked by debris.
- Keep the area around the furnace free from dust, lint, rags, paint, drain cleaners and other materials or chemicals that could catch fire or explode if they become too hot.
- Make sure walls and other obstructions do not block the heating system's air supply.
- If the heating system stops working, check the electrical fuse and switch as well as the thermostat before calling a qualified heating contractor.
- Keep bleaches, paints, paint strippers, varnishes and water softeners away from a heating system.

Home

- Make sure your fireplace has its own source of outside air, especially in a tightly sealed home.
- Open a window if you suspect flue gases have spilled into your home as a result of the use of the fireplace, clothes dryer or kitchen fan, especially if the home has been sealed tightly for energy conservation. This is a temporary measure only. Consult a heating contractor for a permanent solution.
- Contact your fuel supplier if your outdoor natural-gas regulator is covered by snow or ice. Repair a defective or leaking eavestrough.

Chimneys

- Annual inspections of stone or brick chimneys without metal liners or metal venting systems are vital. Better still, install a metal liner.
- Check for obvious signs of disrepair, such as stained or damaged bricks.
- Examine the clean-out pit below stone or brick chimneys, at least once yearly, for debris and staining. Look up the chimney with a mirror and flashlight to check for obstruction. Examine the clean-out pit after any repair or rebuilding of your chimney.

Because lives may be at stake, it's important for do-it-yourselfers to appreciate their limitations. Under no circumstances should unqualified people tamper with heating systems.

Warning signs

Probably the single most important action homeowners can take is to call in a qualified heating contractor at least once a year. In addition to regular maintenance calls, homeowners are advised to contact these safety experts under the following conditions:

Furnace

- The furnace goes out and can't be restarted by following the manufacturer's instructions.
- The pilot light turns yellow or keeps going out on a gas furnace or boiler.
- Water stains form around a furnace.
- There is an unusual noise from furnace.
- The furnace creates odors.

Home

- The home feels 'stuffy' or has an unusual odor.
- There are backdrafts, or soot, from the fireplace.
- The home becomes quite humid.

Chimneys

- There is any blockage, staining, chalky deposits or loose mortar.
- There is a backdraft, soot or dampness from the chimney.

How to select a heating contractor

- Hire only heating contractors who are registered with the Fuels Safety Branch of the Ontario Ministry of Consumer and Commercial Relations.
- Avoid fly-by-nighters, especially strangers who turn up at the door at the start of heating season offering "special" deals.
- Ask friends or your fuel supplier for recommendations.
- Obtain at least three written estimates, outlining the kind of work to be done and who will do it as well as starting and completion dates.
- Determine whether repairs are covered by a warranty or maintenance plan.

Consumer Inquiries

If you need assistance with a consumer problem or dispute, the people at the Consumer Service Bureaus of MCCR, listed below, may be able to help.

For safety concerns, contact the Fuels Safety Branch at the offices listed at the end of this brochure.

Help!

Consumer Service Bureaus

Toronto

Second Floor, 555 Yonge St.

Toronto, Ont. M7A 2H6

(416) 326-8641

Hamilton

P.O. Box 2112

5th Floor, Ont. Government Building

119 King Street W.

Hamilton, Ont. L8N 3Z9

(416) 521-7554

London

P.O. Box 5600

Main Floor, 80 Dundas St. E.

London, Ont. N6A 2P3

(519) 675-7623

Ottawa

2nd Floor, 10 Rideau St.

Ottawa, Ont. K1N 9J1

(613) 787-4048

Peterborough

8th Floor, 139 George St. North

Peterborough, Ont. K9J 3G6

(705) 743-8728

Sudbury

2nd Floor, 199 Larch St.

Sudbury, Ont. P3E 5P3

(705) 675-4378

Thunder Bay

P.O. Box 5000

1st Floor, 435 James St. S.

Thunder Bay, Ont. P7C 5G6 (807) 475-1641

Windsor

6th Floor, 250 Windsor Ave.

Windsor, Ont. N9A 6V9 (519) 254-6413

Fuels Safety Branch offices**East Central Region**

4th Floor, Shipp Centre West Tower

3300 Bloor St. W.

Etobicoke, Ont. M8X 2X4 (416) 234-6030

West Central Region

5th Floor, 119 King St. W.

Hamilton, Ont. L8N 3Z9 (416) 521-7559

Northern Region

P.O. Box 5000

Ontario Government Building

435 James St.

Thunder Bay, Ont. P7C 4T3 (807) 475-1650

Western Region

P.O. Box 5600

Courthouse and Registry Office

80 Dundas St.

London, Ont. N6A 2P3 (519) 675-7605

Eastern Region

7 Park Crescent

Amherstview, Ont. K7N 1L7 (613) 389-2830

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